

REMARKS/ARGUMENTS

This Amendment is in response to the Official Action mailed February 27, 2003.

Claims 1 and 3-14 remain in the application. Independent claim 1 has been amended to correct a term error. Support for this amendment is found in the drawings, FIGs. 5, 6, and 7a-c. No new subject matter has been added with these amendments.

The Specification has been amended to accurately reflect that the trench sidewalls reside in planes substantially parallel to dice channel sides, as illustrated in FIGs. 5, 6, and 7a-c.

A. 35 U.S.C. §112, first paragraph

Claims 1, 3-6, and 8-11 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. The Examiner is thanked for identifying a term error in the present application. The specification and claims have been amended to correct this term error and reflect the structure shown in the drawings, FIGs. 5, 6, and 7a-c. No new subject matter has been added with these amendments. Therefore, reconsideration and withdrawal of the Section 112, first paragraph, rejection of claims 1, 3-6, and 8-11 are respectfully requested.

B. 35 U.S.C. 102(b)

Claims 1, 5, and 6 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,008,537 issued December 28, 1999 to Katsuya Kosaki, et al. (hereinafter "the Kosaki patent") (Office Action, pages 3-4).

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Independent claim 1, from which claims 5 and 6 depend, has been amended to correct a term error such that it includes the limitation of “at least one trench sidewall residing in a plane substantially parallel to said at least one channel sidewall”.

The Office Action contends at page 3 that the Kosaki patent “discloses that the at least one trench sidewall is substantially planar to the at least one channel sidewall (groove 3)”. This is an incorrect reading of the Kosaki patent. The Office’s attention drawn to the fact that, in the present application, the at least one trench sidewall and the at least one channel sidewall are a part of the microelectronic die (i.e., at least one side). Thus, the channel sidewall and the trench sidewall which are in substantially parallel planes to one another must be on at least one the side of the microelectronic die. Now, referring to the Kosaki patent, although the sidewall of the trench 33 that extends through the gold PES layer 8 would arguably be planar to the sidewall of the channel sidewall (groove 3), the gold PES layer 8 is not a part of the microelectronic die (GaAs substrate 1). The trench 33 is used to etch the microelectronic die. This etching is an isotropic etch because a curved or arcuate structure that wider than the trench 33 is formed in the microelectronic die. By geometric definition, this arcuate structure etched into the

microelectronic die will never be in a plane substantially parallel to the channel sidewall. Thus, the limitation of the channel sidewall and the trench sidewall of the microelectronic die side being in substantially parallel planes to one another has not been met.

Thus, as the Kosaki patent does not teach or suggest all of the limitations of the present claims, reconsideration and withdrawal of the Section 102(b) rejection of claims 1, 5 and 6 are respectfully requested.

B. 35 U.S.C. § 103(a)

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Claims 3, 4, 7, and 9-14 – the Kosaki patent in view of the APA

Claims 3, 4, 7, and 9-14 stand rejected under 35 U.S.C. § 103(a) as being obvious over the Kosaki patent in view of the admitted prior art (hereinafter “the APA”) (Office Action, pages 4-7).

As previously discussed, independent claim 1, from which claims 3 and 4 depend, has

been amended to correct a term error such that it includes the limitation of “at least one trench sidewall residing in a plane substantially parallel to said at least one channel sidewall”. As also discussed, the Kosaki patent does not teach or suggest such structures on the side of the microelectronic die. Furthermore, the APA does not teach or suggest this limitation. Therefore, as claim 1, as amended, is believed to be patentable over the Kosaki patent and as the APA does not teach or suggest the claim limitations, claim 3 and 4 are also believe to be patentable.

With regard to claims 7-14, the Office Action admits at page 5 that the Kosaki patent fails to disclose that a thermal interface material is between the heat dissipation device and the microelectronic die back surface. The Office Action then again relies on the APA to show a thermal interface between a heat dissipation device and the microelectronic die back surface. The only motivation given by the Office is “it would have been obvious to the skilled in the art to apply the thermal interface material as taught by Applicant Admitted Prior Art into the device of Kosaki et al. in order to adhere the heat dissipation device to the microelectronic die back surface.”

As discussed in the previous Amendment of June 27, 2003, this “motivation” does not make sense. In the Kosaki patent, the “heat dissipation device” (PHS layer 8) is formed on plated feeder layer 7 by an electrolytic method (see col. 5, lines 42-46). Thus, the PHS layer 8 is inherently attached to the plated feeder layer 7 by the electrolytic process, as is known in the art. Therefore, there is no motivation whatsoever to use a thermal interface material between the PHS layer 8 and the plated feeder layer 7. In fact, quite the opposite, the Kosaki patent would

teach way from the use of a thermal interface material, because if a thermal interface material were placed on the plated feeder layer 7, the electrolytic process would fail.

The Office is respectfully reminded that “[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984) (see M.P.E.P. 2141.02). The method of forming the “heat dissipation device” (PHS layer 8) described in the Kosaki patent clearly teaches away from the use of thermal interface material of the present invention.

The Office is further respectfully reminded that “hindsight reconstruction” cannot be used to select isolated disclosures in the prior art to arrive at a determination of obviousness. “It is impermissible to use the claimed invention as an instruction manual or “template” to piece together the teachings of the prior art so that the claimed invention is rendered obvious. The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992).

Moreover, a teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). A showing of a suggestion, teaching, or motivation to combine prior teachings “must be clear and particular.” *In*

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re Dembiczak, 175 F.3d 994, 50 U.S.P.Q.2d 1614 (Fed. Cir. 1999). There is simply no teaching or suggestion in the Kosaki patent for the use of a thermal interface material.

In response to the Applicant's remarks in the June 27, 2003, the Office Action did not present any reasoning why these references can be reasonably combined, when the Applicant has clearly shown that the combination of the Kosaki patent and the APA clear teaches away from the present invention (i.e., if a thermal interface material of the APA were placed on the plated feeder layer 7 of the Kosaki patent, the electrolytic process of the Kosaki patent would fail. The Office Action has not responded to this at all. The Office cannot simply choose to ignore the Applicants' remarks when they invalidate the Office's basis for rejection.


Therefore, as a *prima facie* case of obviousness has not been established, reconsideration and withdrawal of the Section 103(a) rejection of claims 3, 4, 7, and 9-14 are respectfully requested.

In view of the foregoing remarks and amendments, the Applicants request favorable reconsideration and allowance of the application.

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Please forward further communications to the address of record. If the Examiner needs to contact the below-signed attorney to further the prosecution of the application, the contact number is (208) 433-9217.

Respectfully submitted,


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